



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/510,144	03/15/2005	Mats Sundberg	1737	8645
20676	7590	06/29/2005		
ALFRED J MANGELS 4729 CORNELL ROAD CINCINNATI, OH 452412433			EXAMINER HOANG, TU BA	
			ART UNIT	PAPER NUMBER
			3742	
DATE MAILED: 06/29/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

<p align="center"><b>Office Action Summary</b></p>	<b>Application No.</b> 10/510,144	<b>Applicant(s)</b> SUNDBERG ET AL.	
	<b>Examiner</b> Tu Ba Hoang	<b>Art Unit</b> 3742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)<br>2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)<br>3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>10/03/04</u> . | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____.<br>5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)<br>6) <input type="checkbox"/> Other: _____. |
|--|---|

Art Unit: 3742

**Information Disclosure Statement**

The information disclosure statement filed October 03, 2004 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information (i.e., GB 795,004 and DE 179,100) referred to therein has not been considered.

A copy for each of the GB 795,004 and DE 179,100 is requested for proper consideration since such copy is not available to the Examiner.

**Specification**

The abstract of the disclosure is objected to because the term "m" recited at line 4 is misspelled. It should be changed to "an" instead. Correction is required. See MPEP § 608.01(b).

**Claim Rejections - 35 USC § 112**

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-11 are rejected under 35 U.S.C. 101 because the claimed invention is not supported by either a specific and substantial asserted utility, a credible asserted utility or a well established utility. It is noted that while the disclosure has provided that the heating element material contains  $\text{Mo}(\text{Si}_{1-x}\text{Al}_x)_2$ , where x lies in the range of 0.2-0.6 (see page 2) and the standard procedure of manufacture involves mixing molybdenum, silicon, and aluminum in powder form, and firing the powder mix normally under a shielding gas atmosphere. That results in a cake of the material  $\text{Mo}(\text{Si}_{1-y}\text{Al}_y)_2$ , where y is **larger** than x (see page 3). Thus, with x can only vary within such small range of 0.2 to 0.6 and y is can be much broader, perhaps in any range at least about 0.2 to a much larger than 0.6. Such range larger than 0.6 (i.e., to 10, 100, to infinity and etc...) which has not yet defined would render the claimed result inoperative.

Claims 1-11 are also rejected under 35 U.S.C. 112, first paragraph. Specifically, since the claimed invention is not supported by either a credible asserted utility or a well established utility for the reasons set forth above, one skilled in the art clearly would not know how to use the claimed invention.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-11 are further rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation "the mixture components" at line 12. There is insufficient antecedent basis for this limitation in the claim. The phrase "reacting the

Art Unit: 3742

mixture components by at least **on e** of exothermic reaction and sintering" recited at lines 13-15 renders the claim indefinite because it can not be clearly understood. It is also noted that the recitation of " $\text{Mo}(\text{Si}_{1-y}\text{Al}_y)_2$ " at line 8 without the definition for y also renders the claim indefinite and clearly, without such definition, it is unclear how the compounds  $\text{Mo}(\text{Si}_{1-x}\text{Al}_x)_2$  latter to be formed as recited on line 16.

In claim 7, there is insufficient antecedent basis for "the heating element input components" recited at lines 2-3 in the claim or from the preceding claim 1.

As previously indicated, Claims 1-11 are also rejected under 35 U.S.C. 112, first paragraph for being enabling.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-11 as being best understood are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Sundberg (US 6,563,095) cited by the Applicants. Sundberg ('095) shows a method of producing a heating element containing essentially molybdenum silicide and alloys thereof, which forms aluminum oxide on its surface, wherein a material contains substantially  $\text{Mo}(\text{Si}_{1-x}\text{Al}_x)_2$  and  $\text{Al}_2\text{O}_3$  is produced by (1) mixing a mixture of a silicon and a molybdenum compound with an aluminum compound, wherein the silicon and molybdenum compound mixture includes  $\text{Mo}(\text{Si}_{1-y}\text{Al}_y)_2$  and is mixed with an aluminum compound including at least one of  $\text{Al}_2\text{O}_3$  or  $\text{Al}(\text{OH})_3$  with mixture components having at least 98% degree of purity and (2) reacting the mixture components by at least under a shielding gas atmosphere (i.e., exothermic reaction) and sintering, where y lies in the range of 0.1-0.6 (which covers the claimed range of 0.4 –0.6) and x is at least larger than y, a  $\text{SiO}_2$  included in the mixture is a silicate and does not affect symmetry of molybdenum silicide crystal lattice, sintering auxiliaries  $\text{MgO}$ ,  $\text{CaO}$ ,  $\text{SiO}_2$  and  $\text{Y}_2\text{O}_3$  are added to the mixture, at least one of Re or W or Nb is partially substituted for molybdenum in an amount approximately one third. at least one of the compounds  $\text{SiO}_2$ , Si, and  $\text{MoO}_3$  is added to the mixture with the mixture of the silicon and the molybdenum compound contains  $\text{MoO}_3$  and Al, and at least one of Si and  $\text{SiO}_2$ , the silicate is mullite or sillimanite (see the abstract and column 2, line 54 to column 3, line 67).

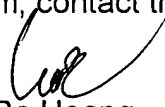
The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Sekhar (US 6,099,978), Funaki et al (US 6,657,166), and Sundberg (US 2004/0056021A1).

Art Unit: 3742

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tu Ba Hoang whose telephone number is (571) 272-4780. The examiner can normally be reached on Mon-fri from 8:30AM to 6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robin Evans can be reached on (571) 272-4777. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Tu Ba Hoang  
Primary Examiner  
Art Unit 3742

June 14, 2005